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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,507	01/17/2002	Haichuan Zhang	271/088	4036
34263	7590	06/25/2004	EXAMINER	
O'MELVENY & MEYERS 114 PACIFICA, SUITE 100 IRVINE, CA 92618			WINSTON, RANDALL O	
			ART UNIT	PAPER NUMBER
			1654	

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/053,507

Applicant(s)

ZHANG, HAICHUAN

Examiner

Randall Winston

Art Unit

1654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05 04 08 04 0503 0502</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claims 1-18 are pending and were examined on the merits.

Claim Objections

Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 14 is a duplicate claim of claim 12.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 2 are rendered vague and indefinite by the terms "speed" or "uniform speed." No objective criterion is provided in the specification or claim to apprise one of skill in the art of the meaning of "speed" or "uniform speed." Accordingly, the metes and bounds of this term is not clearly delineated. (what is the speed or uniform speed?)

Claim 5 recites the vague and indefinite term of "n x n array." The metes and bounds of the above terms cannot be clearly delineated. Applicant is suggested to clearly define what is "n x n array."

Claim 6 recites the vague and indefinite term "step motion." No objective criterion is provided in the specification or claim to apprise one of skill in the art of the meaning of "step motion." Accordingly the metes and bounds of this term is not clearly delineated. (What does step motion mean?)

Claim 7 recites the vague and indefinite term "field distance." No objective criterion is provided in the specification or claim to apprise one of skill in the art of the meaning of "field distance." Accordingly the metes and bounds of this term is not clearly delineated. (What does field distance mean?)

Claim 8 recites the vague and indefinite term "the stage." No objective criterion is provided in the specification or claim to apprise one of skill in the art of the meaning of "the stage." Accordingly the metes and bounds of this term is not clearly delineated. (What does the stage mean?)

Claim 8 recites the limitation "the stage." There is insufficient antecedent basis for this limitation in the claim. Further, the metes and bounds of the claimed limitation have not been delineated.

Claims 9 and 10 recites the limitation "the relative motion." There is insufficient antecedent basis for this limitation in the claim. Further, the metes and bounds of the claimed limitation have not been delineated.

Claims 11-17 are rendered vague and indefinite by the phrase "wherein particles separate red blood cells from white blood cells etc." The metes and bounds of the above phrase cannot be delineated. Applicant is suggested to clarify the above phrase. (Are the particles the cells? Are the particles the red blood cells or maternal cells or

Art Unit: 1654

sperm cells etc? or Are particle something else besides the cells? If so, what are the particles?)

Claim 13 recites the limitations of "the second motion" and "the population." There is insufficient antecedent basis for the limitation in the claim. Further, the metes and bounds of the claimed limitation have not been delineated.

Claim 13 is rendered vague and indefinite by the phrase "the second motion is at a speed less than the escape velocity of at least the certain of the particles in the population." The metes and bounds of the above phrase cannot be delineated. Applicant is suggested to clarify the above phrase.

Claims 16 and 17 are rendered vague and indefinite by the terms "separate out." The metes and bounds of the above terms cannot be delineated. Applicant is suggested to clarify what "separate out" means.

Claim 18 recites the limitation "the population." There is insufficient antecedent basis for the limitation in the claim. Further, the metes and bounds of the claimed limitation have not been delineated.

All other claims depend directly from the rejected claims and are, therefore, also rejected under 35 U.S.C. 112, second paragraph for the reasons set forth above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1654

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Imasaka, *Optical Chromatography: A new tool for separation of particles*, Analisis (1998), 26(5), M53-M55 or Imasaka et al., *Optical Chromatography*, Analytical Chemistry (1995), 67(11), 1763-1765.

Although indefinite for the reasons set forth above, the claimed invention has been interpreted as drawn to a method for separating particles utilizing at least in part optical forces comprising of providing a population of particles (i.e. dielectric particles such as different cells), subjecting particles to optical gradient force (i.e. a line of light such as optical forces, fluidic forces, electromagnetic forces) in order to move the particles for separation of desired particles from other particles.

Imasaka and/or Imasaka et al. (see, e.g., entire article) anticipate the claimed invention because both references teach a method for separating particles utilizing at least in part optical forces comprising of providing a population of particles (i.e. dielectric particle), subjecting particles to optical gradient force (i.e. optical chromatography) in order to move the particles for separation of desired particles from other particles. Therefore, both references are deemed to anticipate the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1654

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imasaka or Imasaka et al.

As outlined *supra*, Imasaka and/or Imasaka et al. teach the claimed invention except each dielectric particle (i.e. red blood cells or maternal cells or white blood cell etc) to be separated for one another.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify Imasaka and/or Imasaka et al. 's method of substituting one dielectric particle (i.e. cell) for another dielectric particle, thus, creating the claimed invention's method because it well known to one of ordinary skill in the art that all cells shares the same characteristic of being dielectric or having a dielectric constant whereas applicant's specification teaches dielectric particles (i.e. cells) are needed within the claimed invention's method in order to subject the optical force to the dielectric particle for the separation of the dielectric particles.

Accordingly, the invention as a whole is *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, especially in the absence of evidence to the contrary.

No claims are allowed.

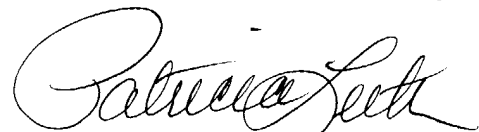
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randall Winston whose telephone number is 571-272-0972. The examiner can normally be reached on 8AM-5PM.

Art Unit: 1654

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on 571-272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PATRICIA LEITH
PRIMARY EXAMINER

A handwritten signature in cursive script, appearing to read 'Patricia Leith', written in black ink.